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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/749,281 12/26/00 ANDERSON

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EXAMINER

VLLQ

ART UNIT

PAPER NUMBER

2841

DATE MAILED:

10/16/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/749,281

Applicant(s)

ANDERSON ET AL.

Examiner

Quynh-Nhu H. Vu

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-150 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-150 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recited feature "a main body region having an optoelectronic device" of claims 1, 3-5 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not disclose the feature "a main body region having optoelectronic device", as recited in claims 1, 3-5.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-150 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-150 are misdescriptive with respect to the specification and the drawing. For example, claim 1 recites the main body region having at least one electrical or optoelectronic device; claims 3-5 recites that the optoelectronic device comprises a photo-detector/ a vertical cavity surface emitting laser. According to the specification and drawing, the main body region 306 having only electronic components 308 (but not optoelectronic device),

Art Unit: 2841

while a head region 302 having an optoelectronic device, i.e., photo-detector. Furthermore, claim 6 recites that optoelectronic device adapted to the head region. According to claims 1-6, does applicant means the optoelectronic device able to adapt to two regions, i.e., the head region and the main body region?

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4, 17, 138, 142-145 and 149-150 are rejected under 35 U.S.C. 102(b) as being anticipated by Gilliland et al. [US 5,774,614].

As best as understood for claim 1, Gilliland et al. disclose in Fig. 2 a flexible printed circuit board (30) comprising: a main body region orientated in a first direction (Y-direction) having optoelectronic device (35); an electrical contact pad (31) integrated into the main body region where the electrical contact pads are capable of connecting the flexible printed circuit board to an external environment; a buckle region extending from one end of the main body region; and a head region (X-direction) extending from one end of the buckle region, and where the head region is orientated so that it is at an angle relative to the direction of the main body region.

As to claims 4 and 140, the optoelectronic device comprises a vertical cavity surface emitting laser (VCSEL hereinafter).

As to claim 10, the electrical contact pad is adapted to a first surface of the main body region.

As to claims 17 and 149, plurality of conducting lines (33, 38) adapted to the head region or main body region of the flexible printed circuit board.

As to claims 138, a head region having at least one optoelectronic device (20) thereon, the optoelectronic device situated substantially along a longitudinal axis of the flexible printed circuit board.

As to claims 142-144, at least one electrical device (optoelectrical device, i.e., VCSEL 20) adapted to a surface of the main body region.

As to claim 150, a wire leads (33, 38) adapted to the main body region.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-3, 5-13, 15-16, 18-57, 75-94, 115-137 and 139-148 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilliland et al.

As claim 2, Gilliland et al. does not disclose the external environment is a second circuit board. However, it is well known in the art to employ the external environment by the second circuit board for intended use, i.e., for connecting between the two circuit boards.

As to claims 3 and 143, Gilliland et al. disclose the optoelectronic device is a vertical cavity surface emitting laser. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ the photo-detector on the printed circuit board for the benefit of receiving the light.

Art Unit: 2841

As to claims 5, 9, 141 and 145, Gilliland et al. disclose the optoelectronic device comprises VCSEL. However, Gilliland et al. do not disclose the VCSEL comprises an oxide-VCSEL. It would well know in the art to employ the oxide-VCSEL, since oxide-VCSEL operate a high frequency modulation and lower threshold currents.

As to claims 6-8, a component (35) formed in the head region, however, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ the optoelectronic device, i.e., photodetector or VCSEL for the benefits of receiving or transmitting the light. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ the photodetector or VCSEL formed in the head region, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

As to claims 11-13, Gilliland et al. do not disclose the electrical contact pads are ball grid arrays/solder balls/ land-grid arrays. However, it is well known in the art to use the ball grid arrays/solder balls/ land-grid arrays for the electrical contacting pads, for a different intended use purpose.

As to claims 15-16, 85-86, 128-129 and 147-148, Gilliland et al. do not disclose an optical power control system, an amplifier chip adapted to the head region or main body region of the flexible printed circuit board. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ the optical power control system/ an amplifier chip adapted to the flexible printed circuit, since the optical power control system functions to control the array of VCSEL, and the amplifier chip for increasing the signal voltage or signal power level from the optoelectronic device.

As to claims 18, 27-29, 30, 75 and 79, 83, Gilliland et al. disclose all claimed subject matter (see rejection of claim 1). However, Gilliland et al. do not disclose the heat spreader and

Art Unit: 2841

window on the flexible printed circuit board. It is well known in the art to employ the heat spreader and the window on the circuit board in order to spread the heat to different location on the printed circuit board.

As to claims 19-25, 19-21, 80-82, the limitations of claims 19-25 are similar to claims 3-9. Therefore, they are rejected for the same reasons.

As to claims 26, 47 and 84, the head region is orientated in such a manner so that it is substantially perpendicular to the direction of the main body region.

As to claims 31, 88, a wire leads (34) adapted to the main body region.

As to claims 32-34, the limitations of claims 32-34 are similar to claims 1-2 and 10. Therefore, they are rejected for the same reasons.

As to claims 35-37, the limitations of claims 35-37 are similar to claims 11-13. Therefore, they are rejected for the same reasons.

As to claims 38-39, 48-49, Gilliland et al. disclose the electrical component adapted along at least a portion of a surface of the head portion of the flexible printed circuit board. However, Gilliland et al. do not disclose the electrical plane is a ground plane. However, it is well known in the art to employ the electrical plane for ground plane.

As to claims 40-46, the limitations of claims 40-46 are similar to claims 3-9. Therefore, they are rejected for the same reasons.

As to claims 50-54 and 89-91, the limitations of claims 50-54 and 89-91 are similar to claims 30-34. Therefore, they are rejected for the same reasons.

As to claims 55-57 and 92-94, the limitations of claims 55-57 and 92-94 are similar to claims 11-13. Therefore, they are rejected for the same reasons.

As to claim 87, the limitation of claim 87 is similar to claim 17. Therefore, it is rejected for the same reasons.

As to claims 115, 119, see combination of rejection of claims 1, 38 and 75.

As to claims 116-118, the limitations of claims 116-118 are similar to claims 3-5.

Therefore, they are rejected for the same reasons.

As to claims 120-123, the limitations of claims 120-123 are similar to claims 7-9 and 123.

Therefore, they are rejected for the same reasons.

As to claims 124-127, the limitations of claims 124-127 are similar to claims 48-50 and 26. Therefore, they are rejected for the same reasons.

As to claims 130-134, the limitations of claims 130-134 are similar to claims 17, 31-34. Therefore, they are rejected for the same reasons.

As to claims 135-137, the limitations of claims 135-137 are similar to claims 11-13. Therefore, they are rejected for the same reasons.

Allowable Subject Matter

9. Claims 14, 85 and 146 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 58-74 and 95-114 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Babutzka et al. [US 6,195,261] disclose a flexible printed circuit board comprising a main body, head region, buckle region and an optoelectronic device formed on the circuit board.

Art Unit: 2841

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh-Nhu H. Vu whose telephone number is 703-305-0850. The examiner can normally be reached on 7:30-5:00 (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 703-308-3301. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

QNV
October 8, 2001


ALBERT W. PALADINI
PRIMARY EXAMINER